Amendments to The Claims

The following listing of claims replaces all prior versions and listings of the claims in this application.

Listing of the Claims

1-193. (Cancelled)

194. (Currently amended) A method for identifying a compound that potentially ~~elicits or~~ modulates T1R1/T1R3 (umami) - associated taste comprising:

(i) screening one or more compounds in a binding assay which identifies compounds that specifically bind to a T1R1/T1R3 (umami) taste receptor or which specifically modulate (enhance or inhibit) the specific binding of another compound to a T1R1/T1R3 (umami) taste receptor; and

(ii) identifying compounds that potentially ~~elicit or~~ modulate T1R1/T1R3 (umami) taste based on their (a) specific binding to a T1R1/T1R3 umami taste receptor or (b) modulation of the specific binding of another compound to a T1R1/T1R3 umami taste receptor, wherein said T1R1 is a T1R1 polypeptide and is (i) encoded by a nucleic acid sequence comprising SEQ. ID. NO: 8, (ii) encoded by a nucleic acid sequence comprising a nucleic acid that hybridizes to SEQ. ID. NO: 8 under stringent hybridization conditions which are conducting the hybridization reaction at 42°C in a solution comprising 50% formamide, 5X SSC, and 1% SDS and washing at 65°C in a solution comprising 0.2X SSC and 0.1% SDS, or (iii) a T1R1 polypeptide possessing at least 95% sequence identity to the T1R1 polypeptide of SEQ. ID. NO: 5;

and wherein said T1R3 is a T1R3 polypeptide and is (i) encoded by a nucleic acid sequence comprising SEQ. ID. NO: 9 or SEQ. ID. NO: 11; (ii) encoded by a nucleic acid sequence that hybridizes to SEQ. ID. NO: 9 or SEQ. ID. NO: 11 under stringent hybridization conditions which are conducting the hybridization reaction at 42°C in a solution comprising 50% formamide, 5X SSC, 10% SDS; and washing at 65°C in a solution comprising 0.2X SCC and 0.1% SDS, or (iii) a T1R3 polypeptide possessing at least 95% sequence identity to the T1R3 polypeptide of SEQ. ID. NO: 4 or SEQ. ID. NO: 7.

195. (Previously presented) The method of claim 194 wherein said T1R1 receptor is selected from the group consisting of rat T1R1, mouse T1R1 and human T1R1 and said T1R3 is selected from the group consisting of rat T1R3, mouse T1R3 and human T1R3.

196. (Previously presented) The method of claim 194 wherein said T1R1 and T1R3 are of the same species origin.

197. (Previously presented) The method of claim 194 wherein said T1R1 and T1R3 are of different species origin.

198. (Currently amended) The method of claim 194 wherein said T1R1 is a human T1R1 ~~having~~ comprising the amino acid sequence ~~contained in~~ of SEQ. ID. NO: 5.

199. (Canceled) ~~The method of claim 194 wherein said T1R1 is a human T1R1 that exhibits at least 90% sequence identity to the polypeptide contained in SEQ. ID. NO: 5.~~

200. (Currently amended) The method of claim 194 wherein said T1R1 is a human T1R1 that exhibits at least 95% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 5.

201. (Currently amended) The method of claim 194 wherein said T1R1 is a human T1R1 that exhibits at least 96% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 5.

202. (Currently amended) The method of claim 194 wherein said T1R1 is a human T1R1 that exhibits at least 97% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 5.

203. (Currently amended) The method of claim 194 wherein said T1R1 is a human T1R1 that exhibits at least 98% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 5.

204. (Currently amended) The method of claim 194 wherein said T1R1 is a human T1R1 that exhibits at least 99% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 5.

205. (Currently amended) The method of claim 194 wherein said T1R1 is encoded by the ~~nutrie~~ nucleic acid sequence ~~contained in~~ of SEQ. ID. NO: [[9]] 8.

206. (Currently amended) The method of claim 194 wherein said T1R1 is encoded by a ~~nutrie~~ nucleic acid sequence that ~~hybridizes under stringent hybridization conditions to the nucleic acid sequence contained in SEQ. ID. NO: 9~~ hybridizes to SEQ. ID. NO: 8 under stringent hybridization conditions which are conducting the hybridization reaction at 42°C in a solution comprising 50% formamide, 5X SSC, and 1% SDS and washing at 65°C in a solution comprising 0.2X SSC and 0.1% SDS.

207. (Canceled) ~~The method of claim 194 wherein said T1R1 is a polypeptide is a fragment of the polypeptide encoded by the nucleic acid sequence contained in SEQ ID. NO: 9 that when expressed in association with a T1R3 polypeptide yields a T1R1/T1R3 umami taste receptor that specifically binds to umami taste stimuli.~~

208. (Canceled) ~~The method of claim 194 wherein said T1R1 comprises a fragment of the human T1R1 polypeptide contained in SEQ. ID. NO. 5 that when expressed in association with a T1R3 polypeptide results in a heteromeric T1R1/T1R3 taste receptor that specifically binds umami taste stimuli.~~

209. (Currently amended) The method of claim 194 wherein said T1R3 is a human T1R3 ~~having~~ comprising the amino acid sequence ~~contained in~~ of SEQ. ID. NO: 7.

210. (Canceled) ~~The method of claim 194, wherein said T1R3 polypeptide possesses at least 90% sequence identity to the polypeptide contained in SEQ. ID. NO: 7.~~

211. (Currently amended) The method of claim 194, wherein said T1R3 polypeptide possesses at least 95% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 4 or SEQ. ID. NO: 7.

212. (Currently amended) The method of claim 194, wherein said T1R3 polypeptide possesses at least 96% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 4 or SEQ. ID. NO: 7.

213. (Currently amended) The method of claim 194, wherein said T1R3 polypeptide possesses at least 97% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 4 or SEQ. ID. NO: 7.

214. (Currently amended) The method of claim 194, wherein said T1R3 polypeptide possesses at least 98% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 4 or SEQ. ID. NO: 7.

215. (Currently amended) The method of claim 194, wherein said T1R3 polypeptide possesses at least 99% sequence identity to the polypeptide ~~contained in~~ of SEQ. ID. NO: 4 or SEQ. ID. NO: 7.

216. (Currently amended) The method of claim 194 wherein the T1R3 polypeptide is a rat T1R3 polypeptide ~~having~~ comprising the sequence ~~contained in~~ of SEQ. ID. NO: 4.

217. (Currently amended) The method of claim 194 wherein the T1R3 polypeptide is encoded by the nucleic acid sequence ~~contained in~~ of SEQ ID. NO: 9 or SEQ. ID. NO: 11.

218. (Currently amended) The method of claim 194 wherein said T1R3 polypeptide is encoded by a nucleic acid sequence that ~~hybridizes to the nucleic acid sequence contained in SEQ. ID. NO: 9 under stringent hybridization conditions~~ hybridizes to SEQ. ID. NO: 9 or SEQ. ID. NO: 11 under stringent hybridization conditions which are conducting the hybridization reaction at 42°C in a solution comprising 50% formamide, 5X SSC, and 1% SDS and washing at 65°C in a solution comprising 0.2X SSC and 0.1% SDS ~~or a fragment thereof that encodes a T1R3 polypeptide which when expressed in association with a T1R1 polypeptide yields a heteromeric umami T1R1/T1R3 taste receptor that specifically binds umami taste stimuli~~.

219. (Previously presented) The method of claim 194 wherein said T1R1/T1R3 receptor is expressed by a cell.

220. (Currently amended) The method of claim 194 wherein a membrane extract comprises said T1R1/T1R3 receptor ~~is comprised in a membrane extract~~.

221. (Previously presented) The method of claim 194 wherein said T1R1/T1R3 receptor is attached to a solid phase.

222. (Previously presented) The method of claim 194 wherein said T1R1/T1R3 receptor is in solution.

223. (Currently amended) The method of claim 194 wherein a liquid bilayer or vesicle comprises said T1R1/T1R3 receptor ~~is comprised in a liquid bilayer or vesicle~~.

224. (Previously presented) The method of claim 219 wherein said cell is an intact or permeabilized cell.

225. (Previously presented) The method of claim 219 wherein said cell further expresses a G protein.

226. (Previously presented) The method of claim 219 wherein said cell is a prokaryotic cell.

227. (Previously presented) The method of claim 219 wherein said cell is a eukaryotic cell.

228. (Previously presented) The method of claim 227 wherein said cell is an insect, yeast, amphibian or mammalian cell.

229. (Previously presented) The method of claim 227 wherein said cell is a CHO cell, HEK-293 cell, COS cell or Xenopus oocyte.

230. (Previously presented) The method of claim 194 wherein the binding assay detects changes in the conformation of the T1R1/T1R3 heteromeric receptor.

231. (Previously presented) The method of claim 230 wherein said change is detected by NMR spectroscopy.

232. (Previously presented) The method of claim 230 wherein said change is detected by fluorescence spectroscopy.

233. (Previously presented) The method of claim 194 wherein said T1R1/T1R3 umami receptor further comprises a G protein.

234. (Previously presented) The method of claim 233 wherein said G protein is $G_{\alpha 15}$, $G_{\alpha 16}$ or gustducin.

235. (Previously presented) The method of claim 194 wherein said binding assay includes the use of a detectable label.

236. (Previously presented) The method of claim 235 wherein said label is an enzyme, radionuclide, chemiluminescent compound or fluorescent compound.

237. (Currently amended) The method of claim ~~197~~ 194 wherein the binding assay detects displacement of a labeled ~~legand~~ ligand said such T1R1/T1R3 heteromeric receptor.

238. (Previously presented) The method of claim 194 wherein said binding assay is a fluorescence polarization or FRET assay.

239. (Previously presented) The method of claim 194 wherein the binding assay detects conformational changes in the T1R1/T1R3 taste receptor based on altered susceptibility to proteolysis.

240. (Currently amended) The method of claim 194 ~~which~~ wherein the binding assay is a competitive binding assay.

241. (Currently amended) The method of claim 194 wherein [[to]] the binding assay is a non-competitive binding assay.

242. (Previously presented) The method of claim 194 wherein the binding assay detects the effect of said compound on the specific binding of another compound to said receptor.

243. (Previously presented) The method of claim 194 wherein said binding assay detects the effect of said compound on the binding of L-glutamate or L-aspartate to said receptor.

244. (Previously presented) The method of claim 194 wherein said binding assay uses a cell that stably expresses the T1R1/T1R3 receptor on its surface.

245. (Previously presented) The method of claim 194 which said binding assay uses a cell that transiently expresses the T1R1/T1R3 receptor on its surface.

246. (Previously presented) The method of claim 194 wherein the binding assay uses an HEK-293 cell that stably expresses T1R1/T1R3 and further expresses $G_{\alpha}15$.

247. (Previously presented) The method of claim 246 wherein said binding assay detects the effect of said compound on the binding of a radioactively or fluorescently labeled legand to said receptor.

248. (Previously presented) The method of claim 194 wherein said binding assay detects binding based on a detectable change in fluorescence absorbance or refractive index.

249. (Currently amended) The method of claim 194 wherein the binding assay is a high-throughput screening assay.

250. (Previously presented) The method of claim 247 wherein the assay screens a combinatorial chemical library.

251. (Previously presented) The method of claim 247 wherein the assay screens a randomized small compound library.

252. (Previously presented) The method of claim 194 which further includes step (3) wherein the effect of said compound on a T1R1/T1R3 umani taste receptor is evaluated in a human or animal taste test.

253. (New) A method for identifying a compound that potentially modulates T1R1/T1R3 (umami) receptor associated taste in a subject comprising:

(i) screening one or more compounds in a binding assay which identifies compounds that specifically bind to a T1R1/T1R3 (umami) taste receptor or which specifically modulate (enhance or inhibit) the specific binding of another compound to a T1R1/T1R3 (umami) taste receptor; and

(ii) identifying compounds that potentially modulate T1R1/T1R3 (umami) taste based on their (a) specific binding to a T1R1/T1R3 umami taste receptor or (b) modulation of the specific binding of another compound to a T1R1/T1R3 umami taste receptor, wherein said T1R1 is a T1R1 polypeptide possessing at least 95% sequence identity to the human, mouse, or rat T1R1 of Figure 1; and wherein said T1R3 polypeptide is a T1R3 polypeptide possessing at least 95% sequence identity to the human, mouse, or rat T1R3 of Figure 1.

254. (New) The cell of claim 253 wherein said T1R1 and T1R3 are derived from different species.

255. (New) The method of claim 253 wherein said T1R1 and T1R3 are of the same species.

256. (New) The cell of claim 253 wherein T1R1 polypeptide is the human, mouse, or rat T1R1 of Figure 1.

257. (New) The cell of claim 253 wherein said T1R1 polypeptide has at least 95% sequence identity to the human, mouse, or rat T1R1 of Figure 1.

258. (New) The cell of claim 253 wherein said T1R1 polypeptide has at least 96% sequence identity to the human, mouse, or rat T1R1 of Figure 1.

259. (New) The cell of claim 253 wherein said T1R1 polypeptide has at least 97% sequence identity to the human, mouse, or rat T1R1 of Figure 1.

260. (New) The cell of claim 253 wherein said T1R1 polypeptide has at least 98% sequence identity to the human, mouse, or rat T1R2 of Figure 1.

261. (New) The cell of claim 253 wherein said T1R1 polypeptide has at least 99% sequence identity to the human, mouse, or rat T1R2 of Figure 1.

262. (New) The cell of claim 253 wherein T1R3 polypeptide is the human, mouse, or rat T1R3 of Figure 1.

263. (New) The cell of claim 253 wherein said T1R3 polypeptide has at least 95% sequence identity to the human, mouse, or rat T1R3 of Figure 1.

264. (New) The cell of claim 253 wherein said T1R3 polypeptide has at least 96% sequence identity to the human, mouse, or rat T1R3 of Figure 1.

265. (New) The cell of claim 253 wherein said T1R3 polypeptide has at least 97% sequence identity to the human, mouse, or rat T1R3 of Figure 1.

266. (New) The cell of claim 253 wherein said T1R3 polypeptide has at least 98% sequence identity to the human, mouse, or rat T1R3 of Figure 1.

267. (New) The cell of claim 253 wherein said T1R3 polypeptide has at least 99% sequence identity to the human, mouse, or rat T1R3 of Figure 1.

268. (New) The method of claim 253 wherein said T1R1/T1R3 receptor is expressed by a cell.

269. (New) The method of claim 253 wherein a membrane extract comprises said T1R1/T1R3 receptor.

270. (New) The method of claim 253 wherein said T1R1/T1R3 receptor is attached to a solid phase.

271. (New) The method of claim 253 wherein said T1R1/T1R3 receptor is in solution.

272. (New) The method of claim 253 wherein a liquid bilater or vesicle comprises said T1R1/T1R3 receptor.

273. (New) The method of claim 268 wherein said cell is an intact or permeabilized cell.

274. (New) The method of claim 268 wherein said cell further expresses a G protein.

275. (New) The method of claim 268 wherein said cell is a prokaryotic cell.

276. (New) The method of claim 268 wherein said cell is a eukaryotic cell.

277. (New) The method of claim 276 wherein said cell is an insect, yeast, amphibian or mammalian cell.

278. (New) The method of claim 276 wherein said cell is a CHO cell, HEK-293 cell, COS cell or Xenopus oocyte.

279. (New) The method of claim 253 wherein the binding assay detects changes in the conformation of the T1R1/T1R3 heteromeric receptor.

280. (New) The method of claim 279 wherein said change is detected by NMR spectroscopy.

281. (New) The method of claim 279 wherein said change is detected by fluorescence spectroscopy.

282. (New) The method of claim 253 wherein said T1R1/T1R3 umami receptor further comprises a G protein.

283. (New) The method of claim 282 wherein said G protein is $G_{\alpha 15}$, $G_{\alpha 16}$ or gustducin.

284. (New) The method of claim 253 wherein said binding assay includes the use of a detectable label.

285. (New) The method of claim 284 wherein said label is an enzyme, radionuclide, chemiluminescent compound or fluorescent compound.

286. (New) The method of claim 253 wherein the binding assay detects displacement of a labeled ligand said such T1R1/T1R3 heteromeric receptor.

287. (New) The method of claim 253 wherein said binding assay is a fluorescence polarization or FRET assay.

288. (New) The method of claim 253 wherein the binding assay detects conformational changes in the T1R1/T1R3 taste receptor based on altered susceptibility to proteolysis.

289. (New) The method of claim 253 wherein the binding assay is a competitive binding assay.

290. (New) The method of claim 253 wherein the binding assay is a non-competitive binding assay.

291. (New) The method of claim 253 wherein the binding assay detects the effect of said compound on the specific binding of another compound to said receptor.

292. (New) The method of claim 253 wherein said binding assay detects the effect of said compound on the binding of L-glutamate or L-aspartate to said receptor.

293. (New) The method of claim 253 wherein said binding assay uses a cell that stably expresses the T1R1/T1R3 receptor on its surface.

294. (New) The method of claim 253 which said binding assay uses a cell that transiently expresses the T1R1/T1R3 receptor on its surface.

295. (New) The method of claim 253 wherein the binding assay uses an HEK-293 cell that stably expresses T1R1/T1R3 and further expresses $G_{\alpha}15$.

296. (New) The method of claim 295 wherein said binding assay detects the effect of said compound on the binding of a radioactively or fluorescently labeled ligand to said receptor.

297. (New) The method of claim 253 wherein said binding assay detects binding based on a detectable change in fluorescence absorbance or refractive index.

298. (New) The method of claim 253 wherein the binding assay is a high-throughput screening assay.

299. (New) The method of claim 297 wherein the assay screens a combinatorial chemical library.

300. (New) The method of claim 297 wherein the assay screens a randomized small compound library.

301. (New) The method of claim 253 which further includes step (3) wherein the effect of said compound on a T1R1/T1R3 umani taste receptor is evaluated in a human or animal taste test.